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REMARKS

This amendment is intended as a full and complete response to the final Office Action mailed November 21, 2003. In the Office Action, the Examiner notes that claims 1-21 are pending, of which claims 1-19 and 21 stand rejected and claim 20 is withdrawn from prosecution. By this amendment, claim 1 has been amended; and claims 2-21 continue unamended.

In view of both the amendments presented above and the following discussion, the Applicants submit that none of the claims now pending in the application are indefinite under the provisions of 35 U.S.C. §112 or obvious under the provisions of 35 U.S.C. §103. Thus, the Applicants believe that all of these claims are now in allowable form.

It is to be understood that the Applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

Premature Final Rejection

The Applicants note that the above referenced Office Action (Paper No. 17) is indicated as being a Final Office Action. It is noted that newly cited art forms the basis of the rejection. As such, it is respectfully submitted that the Examiner has prematurely issued a Final Office Action. Therefore, the Applicants request that the above referenced Office Action (Paper No. 17) be deemed a non-Final Office Action.

Rejections under 35 U.S.C. §112

The Examiner rejected claims 4-6 and 11-12 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner states that there is insufficient antecedent basis for the following limitations of these claims: "Claim 4 recites the limitation 'the non-realtime encoder' in lines 3-4"; "Claim 9 recites the limitation 'the realtime encoder' in line 1"; "Claims 11 and 12 recite the

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limitation 'the realtime and non-realtime encoders' in lines 2 and 3 respectively."

Applicants respectfully traverse the rejections.

The Applicants have amended independent claim 1 to change the limitations "first encoder" and "second encoder" respectively to "non-realtime encoder" and "realtime encoder." In particular, claim 1 recites:

"An apparatus for encoding realtime and non-realtime contents, the apparatus comprising:
a non-realtime encoder configured to encode non-realtime content into encoded non-realtime content slices;
a realtime encoder configured to encode the realtime content into encoded realtime content slices;
a remultiplexer configured to repacketize the encoded non-realtime content slices and the encoded realtime content slices into transport packets;
and
a re-timestamp unit coupled to the remultiplexer and configured to provide timestamps to be applied to the transport packets in order to synchronize the realtime and non-realtime content." (emphasis added).

Support for the non-realtime encoder and realtime encoder may be found in Applicants' specification on page 6, lines 6-10 and FIG. 32. Accordingly, the Applicants submit that claim 1, as amended, provides proper antecedent basis for dependent claims 4-6, 9, and 11-12.

As such, the Applicants submit that claims 4-6, 9, and 11-12 are not indefinite and fully satisfy the requirements of 35 U.S.C. 112 and are patentable thereunder. Therefore, the Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §112 rejection.

REJECTIONS UNDER 35 U.S.C. §103

A. Claims 1-3, 8, 11, 13-15

The Examiner rejected claims 1-3, 8, 11, 13-15 under 35 U.S.C. 103(a) as being unpatentable over Naimpally (U.S. Patent No. 5,619,337, issued April 8, 1997, hereinafter "Naimpally"), and in view of Mao et al. (U.S. Patent No. 6,459,427, issued October 1, 2002, hereinafter "Mao"). Applicants respectfully traverse the rejection.

The Applicants' independent claim 1 recites:

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"An apparatus for encoding realtime and non-realtime contents, the apparatus comprising:
a non-realtime encoder configured to encode non-realtime content into encoded non-realtime content slices;
a realtime encoder configured to encode the realtime content into encoded realtime content slices;
a remultiplexer configured to repacketize the encoded non-realtime content slices and the encoded realtime content slices into transport packets; and
a re-timestamp unit coupled to the remultiplexer and configured to provide timestamps to be applied to the transport packets in order to synchronize the realtime and non-realtime content." (emphasis added).

The test under 35 U.S.C. § 103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Thus, it is impermissible to focus either on the "gist" or "core" of the invention, Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416, 420 (Fed. Cir. 1986) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The combination of Naimpally and Mao fails to teach or suggest the Applicants' invention as a whole.

In particular, the Naimpally reference discloses a system which separates one program from a multi-program transport stream for recording on a digital VCR. Each encoder includes three MPEG-1 or MPEG-2 elementary stream encoders, 140, 142, and 144. Encoder 142 is an NPEG video encoder. Encoder 142 may be a conventional MPEG audio encoder and encoder 144 may be a conventional MPEG data encoder. The packetized elementary stream (PES) packets provided by the various encoders 140, 142, and 144 are applied to a transport encoder/multiplexer 146. The multiplexer 146 formats each of the PES packets into one or more transport packets as defined in the MPEG standards. (See, Naimpally, Abstract, col. 5, lines 31-61, and FIGs. 1a and 1b). Nowhere in the Naimpally reference, and as the Examiner concedes, is there any teaching or suggestion of "a re-timestamp unit coupled to the remultiplexer and

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configured to provide timestamps to be applied to the transport packets in order to synchronize the realtime and non-realtime content."

Furthermore the Mao references fails to bridge a substantial gap as between the Naimpally reference and the Applicants' invention. In particular, Mao merely discloses "The MPEG-2 multiplexer 70 can receive single program transport streams or multiple program transport streams though DVB (Digital Video Broadcasting) ASI (Asynchronous Serial Interface) up to 270 Mbps. Since each 6 MHZ cable channel can only fit about 27 Mbps using 64 QAM modulation, a remultiplexer is required to remultiplex the programs in order to fit into these channels. The remultiplexer 70 can perform remultiplexing single or multiple program transport streams into multiple program transport streams at different bit rates, re-assign PID (packet ID), adjust PCR (Program Clock Reference), and modify PAT/PMT (Program Association Table/Program Map Table), and insert conditional access messages such as ECM and EMM." (See, Mao, col. 5, lines 12-24). However, nowhere in the Naimpally and Mao references is their any teaching or suggestion of "a re-timestamp unit coupled to the remultiplexer and configured to provide timestamps to be applied to the transport packets in order to synchronize the realtime and non-realtime content."

The Examiner has taken official notice that "synchronization of realtime and non-realtime contents is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Naimpally and Mao to use the well known teaching in the art in order to improve data transmission." The Applicants' respectfully disagree.

For prior art reference to be combined to render obvious a subsequent invention under 35 U.S.C. § 103, there must be something in the prior art as a whole which suggests the desirability, and thus the obviousness, of making the combination. Uniroyal v. Rudkin-Wiley, 5 U.S.P.SQ.2d 1434, 1438 (Fed. Cir. 1988). The teachings of the references can be combined only if there is some suggestion or incentive in the prior art to do so. In re Fine, 5 U.S.P.SQ.2d 1596, 1599 (Fed. Cir. 1988). Hindsight is strictly forbidden. It is impermissible to use the claims as a framework to pick and choose among individual references to recreate the claimed invention Id. at 1600; W.L. Gore Associates, Inc., v. Garlock, Inc., 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983).

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The Applicants respectfully request that the Examiner provide at least one reference specifically showing that synchronization of realtime and non-realtime contents was well known in the art at the time the invention was made. However, even if synchronization of realtime and non-realtime content was well known in the art at the time the invention is made, nowhere in either the Naimpally or Mao reference is there any teaching or suggestion to synchronize such realtime and non-realtime content. That is, nowhere in either reference is there any teaching or suggestion of the desirability of a re-time stamped unit coupled to the re-multiplexer and configured to provide time stamps to be applied to the transport packets in order to synchronize the encoded realtime and non-realtime content.

A showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ 2d 1225, 1232 (Fed. Cir. 1998). This evidence may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem being solved. Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ 2d 1626, 1630 (Fed. Cir. 1996). However, the suggestion more often comes from the teaching of the pertinent references. In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ 2d 1453, 1459 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." See Dembiczak, 175 F.3d at 1000, 50 USPQ 2d at 1617 (emphasis added).

The Examiner's conclusion that the cited references and the Examiner's official notice may be combined to improve data transmission is merely a blanket statement describing an end use, which broadly covers practically anything having to do with the transfer of data. The Examiner's conclusory statement does not provide any evidence of a teaching, suggestion, or motivation to synchronize the realtime and non-realtime content in the manner as described and claimed by the Applicants. Accordingly, the Examiner has impermissibly used the claims as a framework to pick and choose among individual references to create the claimed invention.

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Specifically, the Examiner has chosen the encoders from the Naimpally reference, the re-multiplexer to adjust PCRs in the Mao reference, and the Examiner's official notice regarding synchronizing realtime and non-realtime content, without any suggestion or incentive to combine such references. In other words, nowhere in the Naimpally or Mao reference is there any teaching or suggestion that it is desirable to synchronize realtime and non-realtime content. Moreover, nowhere in the cited references is there any teaching or suggestion of synchronizing the realtime and non-realtime contents by using a re-time stamp unit coupled to the re-multiplexer. Therefore, the combination of Naimpally, Mao and the Examiner's official notice fails to teach or suggest the Applicants' invention as a whole.

As such, Applicants submit that independent claims 1 and 14 are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. In addition, dependent claims 2-3, 8, 11, and 13 (which depend either directly or indirectly upon independent claim 1, and 15 (which depends upon independent claim 14) are allowable at least for their dependency upon an allowable base claim. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-3, 8, 11 and 13-15.

B. Claims 1-9, 11-16, 19 and 21

The Examiner rejected claims 1-9, 11-16, 19 and 21 under 35 U.S.C. 103(a) as being unpatentable over Naimpally in view of Yanagihara (U.S. Patent No. 5,859,949, issued January 12, 1999, hereinafter "Yanagihara"). Applicants respectfully traverse the rejection.

As discussed above, the Naimpally reference merely discloses "In particular, the Naimpally reference discloses a system which separates one program from a multi-program transport stream for recording on a digital VCR. Each encoder includes three MPEG-1 or MPEG-2 elementary stream encoders, 140, 142, and 144. Encoder 142 is an NPEG video encoder. Encoder 142 may be a conventional MPEG audio encoder and encoder 144 may be a conventional MPEG data encoder. The packetized elementary stream (PES) packets provided by the various encoders 140, 142, and 144 are applied to a transport encoder/multiplexer 146. The multiplexer 146 formats each of

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the PES packets into one or more transport packets as defined in the MPEG standards. (See, Naimpally, Abstract, col. 5, lines 31-61, and FIGs. 1a and 1b). Therefore, the Naimpally reference fails to teach or suggest the Applicants' invention as a whole.

Furthermore, the Yanagihara reference fails to bridge a substantial gap as between the Naimpally reference and the Applicants' invention. In particular, the Yanagihara reference merely discloses "Multiplexer 10 supplies the multiplexed signal at a bit rate of 30 Mbps to a PCR restamping circuit 12. PLL circuit 5 supplies the output of circuit 8, identified herein as data PCR' (see FIG. 6C), also to PCR restamping circuit 12 which replaces in the multiplexed signal the PCR data with the PCR' data. PCR restamping circuit 12 supplies the video signal (with the PCR' data) to channel coder/modulator circuit 13 which encodes and modulates the video signal utilizing a transfer clock signal TCK and the modulated signal is transmitted." (See, Yanagihara, col. 7, lines 58-67). Nowhere in the combined references is there any teaching or suggestion of a re-time stamp unit coupled to the re-multiplexer and configured to provide timestamps to be applied to the transport packet in order to synchronize realtime and non-realtime content.

That is, the combined references merely disclose encoding non-realtime content, encoding realtime content, and a PCR restamping circuit which replaces in a multiplex signal the data with restamped data. However, nowhere in either reference is there any teaching or suggestion that the restamped data represents synchronized encoded non-realtime content and encoded realtime content. Moreover, nowhere is there any teaching or suggestion of the desirability to synchronize realtime and non-realtime content. Thus, since the combined references fail to teach or suggest a re-time stamp unit coupled to the re-multiplexer and configured to provide time stamps to be applied to the transport packets in order to synchronize realtime and non-realtime content, the references fail to teach or suggest the Applicants' invention as a whole.

As such, the Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements under 35 U.S.C. §103 and is patentable thereunder. Furthermore, independent claim 14 recites similar features as recited in independent claim 1. As such and at least for the same reasons as discussed above, the Applicants submit that independent claim 14 is not obvious and fully satisfies the requirements

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under 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 2-9, 11-13, 15-16, 19, and 21 respectively depend from independent claims 1 and 14 and recite the additional features thereof. As such and for at least the same reasons as discussed above, the Applicants submit that these dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicants respectfully request that the rejections be withdrawn.

C. Claims 10, 17 and 18

The Examiner has rejected Claims 10, 17 and 18 under 35 U.S.C. §103(a) as being unpatentable over Naimpally in view of Yanagihara and further in view of Adams (U.S. Patent No. 6,044,396, issued March 28, 2000) ("Adams"). Applicants traverse the rejection.

Applicants have presented the deficiencies of Naimpally and Yanagihara in sections A and B herein. For brevity, Applicants will not repeat those deficiencies in this section. Applicants respectfully submit that claims 10 (which depends from independent claim 1); and 17 and 18 (which depend from independent claim 14) have already been distinguished from Naimpally and Yanagihara. As such, Applicants further submit that claims 10, 17, and 18 are not obvious in view of Naimpally and Yanagihara. The Examiner has also cited Adams to support the obviousness rejection of claims 10, 17, and 18. Applicants submit that Adams does not correct the deficiencies of Naimpally and Yanagihara.

Adams discloses an apparatus and method for utilizing available bit rate in a constrained bit rate channel. In Adams, The multiplexer includes a number of video buffers for receiving encoded video streams from the media servers and an application buffer for receiving the application data stream from the network controller. However, because of the real time constraints on the display of video data, the video streams must be given higher priority than the application data. If a video packet is lost or delayed, such an error will cause a noticeable effect on the video display. In contrast, the application or control information transmitted is typically not as sensitive to packet delay or loss. Accordingly, a selector decides which data stream is to be given access

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to a channel of the network. The selector allocates the application data stream to a low priority access to the network. Adams specifically recites, that

"[t]he selector removes information from the application buffer when all of the video buffers are empty. When the application buffer 402 itself is relatively empty, as indicated by the application buffer fullness B_A being less than a predetermined application buffer threshold value T_A ($B_A < T_A$) the channel rate control circuit 1002 will increase the output rate of the network controller 204. If the application buffer 402 remains relatively empty, as indicated by $B_A < T_A$, then the channel rate control circuit 1002 will cause the network controller 204 rate to continue increasing, until the application buffer 402 becomes relatively full, as indicated by $B_A > T_A$. At that point, the network controller rate will be decreased, and will continue to decrease as long as the buffer 402 remains relatively full. When the buffer 402 again becomes relatively empty, the network controller rate will again be increased. In this manner, the rate of the nonvideo data is controlled so as to fill available bandwidth in the 6 MHz multiplexed channel" See Adams at column 7, lines 10-26.

In other words, Adams adjusts the rate of information being sent to its application encoder based upon the availability of the application encoder.

Applicants' dependent claim 10, recites in pertinent part, "encoding rate for the non-realtime content is further determined based on a maximum bit rate anticipated for the encoded realtime content." Adams does not teach or suggest the feature of Applicants' claim 10. As such, Naimpally, Yanagihara, and Adams either individually or in any combination do not render Applicants' claim 10 obvious.

Applicants' claim 17 recites, in pertinent part, "the bit rate for the encoded non-realtime content is further based on a maximum bit rate anticipated for the encoded realtime content." In addition, Applicants' claim recites, in pertinent part, "allocating the bit rate for the encoded non-realtime content among a plurality of pages of non-realtime content." Applicants have explained, at length, the operation of Adams. Clearly Adams does not encode non-realtime content based upon a maximum bit rate anticipated for encoded realtime content; or allocate a bit rate for the encoding of non-realtime content among a plurality of pages of non-realtime content, as claimed by Applicants' claims 17 and 18, respectively. In view the operation of Adams, Applicants respectfully submit that Adams does not teach or disclose modification of Adams in such a way that leads to Applicants' invention. As such, Naimpally, Yanagihara, and Adams either individually or in any combination do not render Applicants' claims 17-18 obvious.

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As such, the Applicants submit that claims 10, 17 and 18 are not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of claims 10, 17, and 18.

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CONCLUSION

Thus, the Applicants submit that none of the claims, presently in the application, are indefinite under the provisions of 35 U.S.C. §112 or obvious under the provisions of 35 U.S.C. §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. or Steven M. Hertzberg, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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